UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/534,827	03/23/2000	Krysztof Matyjaszewski	00093	9987

7590 01/26/2007

Christine R Ethridge
Kirkpatrick & Lockhart LLP
Henry W Oliver Building
535 Smithfield Street
Pittsburgh, PA 15222-2312

EXAMINER	
CHEUNG, WILLIAM K	
ART UNIT	**PAPER NUMBER**
1713	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/534,827	MATYJASZEWSKI ET AL.	
	Examiner	Art Unit	
	William K. Cheung	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *86-88,90-162,224-229 and 270-272* is/are pending in the application.

4a) Of the above claim(s) *140-150,159-162,224-229 and 270* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *86-88, 90-139, 151-158, 271-272, 287, 288* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the amendment of November 6, 2006, claim 89 has been cancelled, and new claims 287-288 have been added.

2. Claims 86-88, 90-162, 224-229, 270-272 are pending. Claims 140-150, 159-162, 224-229, 270 are drawn to non-elected subject matter. Claims 86-88, 90-139, 151-158, 271-272, 287, 288 are examined with merit.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 86-88, 90-139, 287, 288 are rejected under 35 U.S.C. 102(e) as being anticipated by Matyjaszewski et al. (US 5,945,491 or US 6,111,022).

Matyjaszeski et al. (abstract) disclose a process of atom transfer radical polymerization for the synthesis of novel homopolymer or a block or graft copolymer. Matyjaszeski et al. (col. 16, last line of the reaction Scheme 3; col. 17, the first and the last line of the reaction Scheme 3) clearly disclose adding a coupling compound containing one or more α,α-disubstituted olefin group(s) to the first polymer in the presence of a transition metal complex capable of undergoing a redox reaction with the first radically transferable atom or group, resulting in the addition of the coupling compound containing the α,α-disubstituted olefin group at the site of the first radically transferable atom or group and an elimination reaction comprising the radically transferable atom or group to form a reactive double bond. Regarding claims 287, and 288, Matyjaszeski et al. clearly disclose the ligand limitation of claim 287 (col. 12, line 27-35), and the ethylene carbonate of claim 288 (col. 29, Table 4) as claimed.Therefore, the invention of Claims 86-88, 90-139, 287, 288 is anticipated.

Applicant's arguments filed November 6, 2006 have been fully considered but they are not persuasive. Applicants argue that Matyjaszewski et al. are silent on that "the second compound is not a free radically polymerizable monomer". However, the examiner disagrees because Matyjaszewski et al. (col. 31, Table 5) in experiment 4 disclose the use of a second compound, apha-methyl vinyl methyl ketone in the disclose process. Since the examiner can not find any polymer prepared from apha-methyl vinyl methyl ketone in a literature search, the examiner has a reasonable that the

apha-methyl vinyl methyl ketone as disclosed in Matyjaszewski et al. is not a free radically polymerizable monomer. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980). Since applicants' specification does not define what type of monomers are considered "not free radically polymerizable", the instant rejection is proper and adequate in view of the teachings of Matyjaszewski et al. as set forth above.

6. Claims 151-158, 271-272 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski et al. (US 5,945,491) in view of Patten et al., "Atom Transfer Radical Polymerization and the Synthesis of Polymeric Materials", Advanced Materials 1998, 10 No. 12, page 901-915.

Matyjaszewski et al. (abstract) disclose a process of atom transfer radical polymerization for the synthesis of novel homopolymer or a block or graft copolymer. Matyjaszewski et al. (col. 16, last line of the reaction Scheme 3; col. 17, the first and the last line of the reaction Scheme 3) clearly disclose adding a coupling compound containing one or more α,α-disubstituted olefin group(s) to the first polymer in the presence of a transition metal complex capable of undergoing a redox reaction with the first radically transferable atom or group, resulting in the addition of the coupling compound containing the α,α-disubstituted olefin group at the site of the first radically

transferable atom or group and an elimination reaction comprising the radically transferable atom or group to form a reactive double bond.

Applicant's arguments filed November 6, 2006 have been fully considered but they are not persuasive. Applicants argue that Matyjaszewski et al. are silent on that "the second compound is not a free radically polymerizable monomer". However, the examiner disagrees because Matyjaszewski et al. (col. 31, Table 5) in experiment 4 disclose the use of a second compound, α-methyl vinyl methyl ketone in the disclose process. Since the examiner can not find any polymer prepared from α-methyl vinyl methyl ketone in a literature search, the examiner has a reasonable that the α-methyl vinyl methyl ketone as disclosed in Matyjaszewski et al. is not a free radically polymerizable monomer. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980). Since applicants' specification does not define what type of monomers are considered "not free radically polymerizable", the instant rejection is proper and adequate in view of the teachings of Matyjaszewski et al. as set forth above.

The difference between the invention of claims 151-158, 271-272 and Matyjaszewski et al. is that Matyjaszewski et al. are silent on a process comprising a core forming compound or a telefunctional multi-armed star copolymers.

Patten et al. (page 901, Figure 1) disclose that a core forming compound or a telefunctional multi-armed star copolymers can be prepared by atom transfer radical polymerization processes. Therefore, motivated by the expectation of success of preparing a star or a multi-arm structure of Patten et al. (page 901, Figure 1), it would have been obvious to one of ordinary skill in art to incorporate the star or multi-arm structure of Patten et al. to obtain the invention of claims 151-158, 271-272.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K. Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

William K. Cheung, Ph. D.

Primary Examiner

January 19, 2007

WILLIAM K. CHEUNG
PRIMARY EXAMINER